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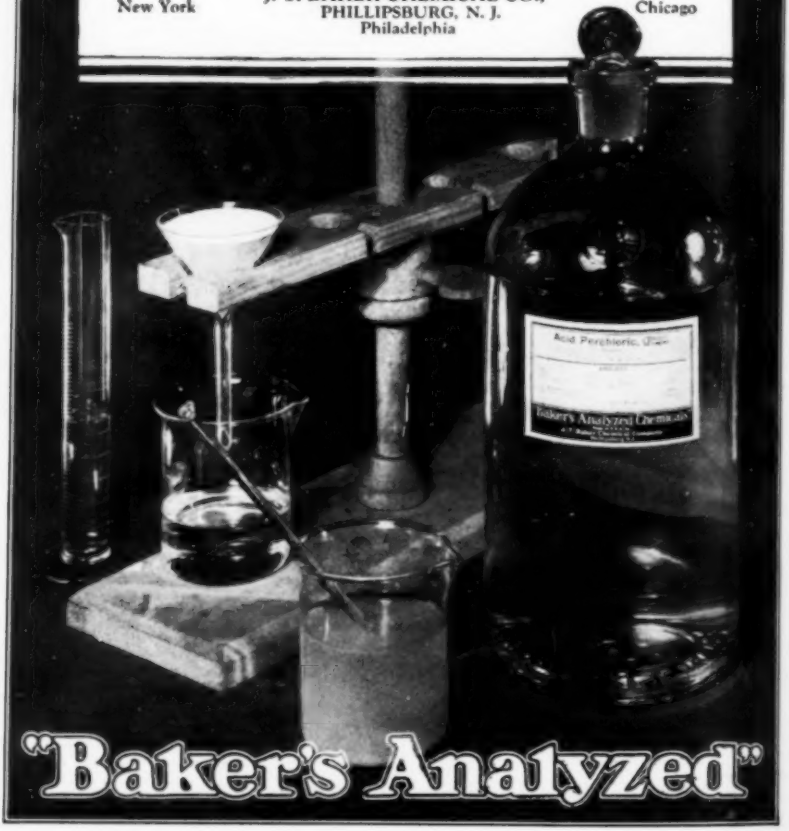

"Baker's Analyzed"

THE CHEMIST IN THE PUBLIC HEALTH SERVICE

By Shirley W. Wynne, M.D., D.P.H.

Address delivered by The Honorable Dr. Wynne, Health Commissioner of the City of New York, before the joint meeting of the Chemical Societies, under the auspices of The American Institute of Chemists, on Friday, December 12, 1930.

In coming before you this evening, I am glad to tell you of the valuable work of the chemists in the various branches of service in the Health Department, but I want to tell you first of some of the work which we are doing in the Health Department itself.

We are today living in the healthiest city in the world. The work done in the research laboratory and the translation of this work into disease prevention have made it so. But this was not always the condition. Formerly such diseases as smallpox, malaria, etc., were rampant in the city, and frequently epidemic at the same time. You all will remember the influenza attack of 1918, when so many died that the Health Department was overtaxed in issuing burial permits. You can imagine what the condition was formerly with infectious diseases at large.

The death rate is now 18 per 1000 of the population, while in earlier years it was 50 per 1000 of the population. If that latter rate were the rate of today, it would mean that this year we would have 350,000 deaths as compared with about 60,000 that we expect to have.

Many of the infectious diseases have been brought under control. Typhus was curbed when it was proved that a special bacillus carried by the body louse was the cause of this disease. Typhoid was controlled by providing a clean water and milk supply. The source of the milk supply was extended to seven hundred miles in every direction from New York City. Because we have a pure milk supply for infants, the death rate has been brought down from 350 to 56 for this year. This rate compares favorably with the best rate for infant mortality found anywhere. In some of the outlying boroughs where economic conditions are better, it is even lower than this.

These epidemic diseases were controlled through the State Health Department. There is also another type of disease that will be controlled provided that the people of this city can be made to realize that we *can* control it.

The first disease of this type is diphtheria. Since 1913 there has been a positive preventive for this disease; yet until the beginning of our diphtheria campaign in 1929 there were approximately 10,000 children each year who became victims of this needless disease in this city alone. Now the death rate has been reduced to one-third, with 200 deaths from diph-

theria; and the morbidity has been reduced from 10,000 to 3000, with every promise that with the continued co-operation of the public we can eliminate diphtheria from the city of New York just as we have eliminated smallpox.

Tuberculosis is another disease of this type. When we started work on this, the death rate was 170 per 1000 population, but in the last six or seven years the number of deaths per 1000 population has decreased because of improved economic conditions. The decline in deaths from tuberculosis is in direct ratio to improvement in economic conditions, because with improved economic conditions come shorter hours of labor, better pay, better food, and outdoor recreation. Recently, when economic conditions became less favorable, the death rate ceased to go down, and then we found that we, as health workers, had been resting on our oars and taking credit for a condition for which we were not directly responsible.

We found that it was usually three years before a person with tuberculosis went into a hospital, and 85% of these cases, of course, were in the advanced stages of the disease Had they been treated in the beginning, only 15% would have failed to have a possibility of being cured. The reason for this condition of things is easy to find. It is the difficulty of making a diagnosis in the incipient stages of tuberculosis. A doctor hates to take the responsibility of sending a man to an institution in the beginning. The patient waits until it is proved positively that he has the disease and then it is often so late that he cannot be cured.

During the past two years we have established eight diagnostic centers in the City of New York. We are undertaking the diagnosis of cases there by X-ray without charge, because the poorer people cannot afford to pay $25.00 just to be told that they have not the disease. At first the whole plan was experimental and few patients knew about these centers, but now every center is operating to full capacity and we are extending the hours for service, in an earnest endeavor to do everything possible to get patients in the very early stages of the disease. Any man who has a persistent cough or is losing weight should be diagnosed by his doctor, but no doctor is competent to make an early diagnosis without the use of the X-ray; so doctors should send their patients to these centers for diagnosis.

Another thing we do is to check up the persons exposed to tuberculosis. Examinations in our clinics show that 20% of those exposed have the disease. If it is a hardship to have one person X-rayed, how difficult it is to have every member in a family examined, when the breadwinner is sent away to an institution! It is a terrible state of affairs, but all too frequently we have found that every member of a family is infected and all are in advanced stages of the disease.

Recently Dr. Rathborn tried to find out how many school children were

infected. Most infections of tuberculosis take place in adolescence when the resistance is likely to be lower and the disease accordingly becomes active. We are trying to locate these active cases and to protect them throughout life. During his study, Dr. Rathborn found that 6% of the children examined had tuberculosis. In the poorer sections, 20% of 1000 school children, thirteen years of age, had definite signs of tuberculosis; 11% had healed lesions. It is of importance to note that autopsies upon the bodies of persons who have died of diseases other than tuberculosis show healed lesions of tuberculosis in 75% of such bodies examined. If we can build up infected children, we will prevent much tuberculosis in the coming adult generation. We must let the people know about the service we can render them and they must take advantage of it.

There is another type of disease—the degenerative diseases—of which we do not know so much; and unfortunately, these diseases are increasing. There are more cases of Brights' disease, arteriosclerosis, etc., now than formerly, and the increase of diabetes is tremendous. This is partly caused by the fact that we are adding more sweets to our diet than we should. When we were boys, we had candy only occasionally as a treat; now there is a candy store on every corner. We do know that if diabetes is discovered early enough, it can be cured by putting persons on a proper diet; and we can keep them alive this way for a reasonable length of time.

We have made little progress in the control of cancer. There has been a definite increase in the number of cases from this cause. We have found that cancer usually occurs as a result of precancerous conditions, such as irritation of the mouth, etc., that should be detected in a health examination. We hope that there is a cure for cancer, but it will take a tremendous amount of research work to find it.

Dr. Dublin of the Metropolitan Life Insurance Company has stated that fourteen years could be added to the expectation of life if people would only make use of the present knowledge that we have. In 1900 the expectation of life of a child born in New York City was forty-one years; expectation of life has now been increased to fifty-five years for a child born here. If fourteen years have already been added to the child's life, fourteen more years can be added during the next twenty years, provided that people will take advantage of the opportunities we offer.

The budget for health in New York City is only two-tenths of a cent per person per day. We have investments running into millions for curative work, but for preventive medicine we spend but two-tenths of a cent. Even the most impoverished countries of Europe spend a far larger amount per capita each year. Many persons have felt perhaps that the Soviet government contains an irresponsible lot of people, but in *Harper's Magazine* for June, Dr. Reynolds shows that they have systematized medicine

and allow an important place to preventive health work.

What does the chemist do in the Health Department?

Chemistry has developed so widely at the present time that chemical processes and the science of chemistry are applied in practically every field of modern science and since public health comprises practically every science, the application of chemistry in all its branches finds application in the field of public health. The chemist's methods and knowledge are applied not only in the purely chemical field but also in the fields of bacteriology, pathology, and biology, and the following is a brief summary of the problems that chemists must undertake for the public health official.

IN THE BACTERIOLOGICAL FIELD. In the preparation of antitoxins and vaccines, the chemist must make the hydrogen-ion determinations which are so important in the manufacture of serums, antitoxins, culture media, and other biological materials. Knowledge of biochemical reactions is necessary, and the instruments and technique involved are beyond the training of the ordinary bacteriologist. Many of the bacteriological tests are really biochemical reactions and the chemistry of the splitting up of carbohydrates and protein materials is necessary in order to have a complete knowledge of the action of bacteria in cultures. The chemist aids in the preparation of stains and other testing solutions for the culturing of bacteria and in making of cultures.

FOOD AND DRUG EXAMINATIONS cover a very wide field, embracing chemistry and microscopy generally. The chemist is required to have a thorough grounding in analytical chemistry, both organic and inorganic, and the following are some of the determinations made:

Milk, for fats, total solids, and the presence of adulterants, such as thickeners, preservatives, and foreign fats. Preservatives such as formaldehyde, salicylic acid or benzoic acid are the common preservatives and the identification of these is relatively simple. Starches and gelatin may be present and qualitative tests usually indicate the presence of these materials.

Cream is tested for butter fat mainly, though foreign fats are quite apt to be present. The Sanitary Code provides for four grades of cream, all of which have certain definite specifications.

Ice-Cream is examined in the same manner as cream and milk, the methods being modified in order to cover this particular product.

Meats are examined for prohibited colors (a procedure which is common to all foods and which will be discussed later). In sausage meat, added starch is determined and this may be estimated quantitatively or may be identified by microscopic methods. There are biological tests for the identification of raw horse flesh based on the principle that when a rabbit has been inoculated with the blood of a particular animal—as for instance,

that of the horse—the serum of the rabbit's blood will react with the blood of the horse and with that of no other animal. Preservatives are found in meats occasionally, especially sulphur dioxide, prohibited by law.

Eggs are examined for preservatives such as boric acid and salicylic acid, and for egg substitutes which may be dried skimmed milk powder made to appear like eggs by the addition of yellow coloring matter.

Cereal products are examined for the presence of bleaching materials such as nitrogen peroxide; and gluten flours in particular are examined for their percentage of gluten and their freedom from starches and bran.

Fruits are tested only to determine the evidence of sulphuring, which is practised in order to preserve and bleach the fruit such as dried apricots, but outside of this consideration very few analyses are made by the chemist.

Alimentary pastes such as semolina are products made from the very finest grades of wheat; and inferior flours are often colored to imitate semolina. In addition to poor flours, artificial coloring may be used to give the appearance of egg, so tests must be made for the presence or absence of egg substance—lecithin—and other egg components in alimentary pastes. The presence of color is the usual test made by chemists, because if yellow color is present, even though egg be present, it is a violation of the food laws.

Coffee is tested for its principal adulterant, chicory; this is a matter for the microscopist who can identify the chicory under the microscope by its histology. Date stones crushed and roasted are often used as substitutes and these also are determined under the microscope.

Cocoa and cocoa products are tested by the routine procedure for fat determinations in order to state whether or not the substance is adulterated chocolate. Chocolate contains the full cocoa butter whereas cocoa contains cocoa butter less than 50% on a dry basis. Coconut oil is a fairly common adulterant and the fat-constants prove its presence.

Spices come practically within the sphere of the microscopist who must have a complete working knowledge of all the spices and adulterating plant stuffs; in addition to this examination, ether extracts are usually made to determine the amount of essential oils; or the spices may be ashed, and the ash analyzed for composition.

Butter is apt to be adulterated by the addition of excess moisture; this is a simple determination. In addition to this, foreign fats are looked for, sometimes paraffin.

Table oils, the most valuable of which is olive oil, are adulterated by the cheaper seed oils, principally cotton seed, sesame, rape seed, corn oil or peanut oil.

Cider vinegar is adulterated by the addition of water or by the subse-

quent extractions of the marc which remains after the first expression of the apple. The marc may be slushed with water in order to remove additional fruit sugars and extractive matter and on fermentation the result will be a low-testing vinegar. Usually, for routine procedure the determination of total acidity is sufficient, although in order to distinguish between cider vinegar and distilled vinegar, other determinations, such as the amount of malic acid or the determination of total solids and an ash analysis, will give an index as to the source of the vinegar. Frequently, mineral acids such as hydrochloric and sulphuric acid are found and these are easily determined by the usual inorganic methods.

Food colors, that is, certified colors and vegetable colors, are permitted and the chemist must be able to distinguish between permitted and unpermitted colors. A regular scheme of separation has been evolved which leads to the identification of the particular color.

Food preservatives have been mentioned in connection with other foods. The usual preservatives sought are boric acid, salicylic acid, benzoic acid, sulphuric acid, formaldehyde, fluorides, and such organic preservatives as beta-naphthol.

Saccharine in foods is determined by its oxidation of sulphur to sulphuric acid; this may be determined quantitatively as barium sulphate, and the amount of saccharine thus calculated.

Flavoring extracts are analyzed for their flavoring principle; vanilla (which is the most commonly adulterated flavoring) is tested for vanillin; and other examinations are made which will give index as to the nature of the extract. These include identification of the resins of vanilla, the lead number, total solids and color index of the extract. Coumarin, a common adulterant, is determined by ether extraction and verified by its melting point.

Micro-analytical methods are used more and more today and in this work there is a branching out from the truly chemical into the biological field. Many determinations, such as sublimation tests, have superseded the strictly chemical tests and by this means benzoic acid, salicylic acid, boric acid, and other volatile preservatives may be determined microscopically. Adulteration by the addition of foreign powdered substances is more easily determined by microscopic than by chemical methods.

In addition to the starches and spice materials, powdered drugs, cocoa, jams and jellies, sausage meat, and similar substances which contain solid foreign matter are most easily and quickly examined by means of the microscope. Micro-analytical knowledge on the part of the chemist very often provides a short cut for many of the more tedious chemical operations.

The pharmaceutical chemist assays alkaloids such as morphine in opium, or strychnin in nux vomica. These are processes which require extraction

by chemical means and the purification and weighing of the extract. Generally speaking, pharmaceutical assays combine principles of both general organic and inorganic chemistry—such as determining the percentage of alcohol, the melting point, applying the so-called constants in food analyses, and making titrations for the amount of alkaline or acid constituents present. Aside from these determinations, physiological assays are made which require animal experimentation. The frog tests for the standardization of digitalis, the standardization of aconite by the injection of guinea pigs, and the standardization of suprarenal extracts by dog methods are examples of biological testing.

The public health chemist, at times, must be prepared to analyze foods and other materials which have caused poisoning and this, again, is a combination of the inorganic and organic determinations of regular chemistry.

Phosphorus, for instance, which may be present in food through negligence, is detected by a very ingenious arrangement whereby the phosphorus is volatilized and becomes luminous in contact with air.

Arsenic is a poison most commonly sought in cases of poisoning. Various methods are used which depend very largely upon the action of arsine on chemical reagents; they produce color reactions that are characteristic of arsenic only.

Hydrocyanic acid and cyanides are very violent poisons; their detection is usually sufficient in order to determine the cause of the poison.

Carbon monoxide poisoning is determined by spectroscopic examination of the blood.

Water analysis, which requires special training, is most easily done in especially equipped water laboratories which exclude other chemical operations.

Sewage analyses also occupy the work of the chemist.

Quite frequently, air must be examined for the presence of carbon monoxide or other poisonous gases; this is done by absorption processes which eliminate certain gases and measure them volumetrically.

In summarizing his remarks, Dr. Wynne said that all the chemists in the service of the Health Department are taxed to their full working ability, but that under present conditions it is impossible to employ a larger number.

He urged everyone present to take a keen interest in the health work of the city, to co-operate in every way possible in the prevention of disease, and to encourage the increased appropriations which are so necessary if public health work is to be carried on properly.

PHILADELPHIA GROUP VISITS LOCAL HOSPITAL

Through Dr. Higbee of the Pennsylvania Salt Manufacturing Co., Mr. Frank M. Jones of the committee on trips arranged for an inspection of the Jefferson Hospital at Philadelphia on the night of December 4th. The good number who attended were treated to a highly educational and instructive evening.

Dr. Clerf demonstrated the construction and use of the bronchoscope for the removal of foreign bodies and explained in detail the methods of handling the problems of the departments which use this instrument. He illustrated his talk with lantern slides and actual specimens of the instruments used.

Dr. Manges, head of the X-ray department, next took charge of the party. He explained the theory of the X-ray, and demonstrated the various types of X-ray apparatus used, for both diagnostic work and therapy. In illustrating the action of the fluoroscope, the members were privileged to see the "vitals" of two of the members in action. Dr. Manges explained the use of opacity agents such as the iodine and barium compounds, showing with photographs the method of diagnosis for kidneys, gall bladder, and intestinal tract. He acknowledged the aid given to X-ray diagnosis by the chemist and said that the medical profession expects even greater things from the chemist in the future. The mathematical procedure for determining the position of foreign objects by the use of X-ray plates was of great interest to the party.

Dr. Ricciutti then took the party through the pathological and bacteriological laboratories. He explained the system of handling specimens, and showed the various type of equipments in use, illustrating as far as was possible within allowable time, with actual specimens.

Because it was so late it was not possible to see the kitchens and laundry.

The visit was concluded with the inspection of the operating and anesthetic rooms, and an explanation of the system of handling patients. The system of keeping records and particularly the keeping of pathological specimens was also explained.

The trip was decidedly worth while both from the standpoint of interest and because of the information gained. All business matters were deferred until the next meeting.

—F. D. Jones

HOW DOES YOUR ACCOUNT STAND ON THE TREASURER'S BOOKS? HAVE YOU PAID YOUR DUES?

ACKNOWLEDGED WITH THANKS

Dr. Arnstein thought that our members would be interested in the following paragraphs from an article entitled *The Engineer's Professional Status* by W. E. Wickenden in *Engineering News-Record:*

The early decades of American engineering had a pioneer civilization as their setting. The scattered group of land surveyors, builders of roads, canals and bridges, and practical constructors of machinery were largely self-taught. A profession, as such, was virtually nonexistent. With the advent of the railroad the whole course of economic history took a significant turn. Public works, manufacturing, and mining were quick to feel the stimulus of mass transportation.

As the profession has grown, it has subdivided and its boundaries have become indistinct. It has very largely ceased to be a profession of individual service and has become one of corporate service. Industry has multiplied its technical functions, many of them sub-professional,but we lump them together loosely under the blanket term "engineering." Engineers are surrounded by hosts of draftsmen, detail designers, specification editors, inspectors, testers, instrument men, sales representatives, contractors, office managers and operating superintendents, and nobody knows where the profession begins or ends. The public has a high regard for the profession in the abstract, and shows great respect for its outstanding men, but has little regard for the rank and file that constitute the membership of the profession.

While engineering has been gravitating toward the semi-professions, other more compact groups—lawyers, physicians, dentists, and architects—have increased in solidarity, raised their qualifying standards, risen in public esteem; and have increased the special monopoly privileges, which they enjoy under the law. As engineers, among the four national groups considered, we Americans have probably the least distinguished status as individuals. . . .

Since a profession must largely govern itself, it is assumed to maintain certain codes: (1) a code of qualifications governing admissions; (2) a code of ethical practices in relations with clients; (3) a code of professional honor in internal relationships; (4) a code of public obligations.

Professional status is an implied contract to serve society in consideration of the honor, rights, and protection society extends to the profession. Through all professional relations runs a threefold thread of accountability, to colleagues, to clients, and to the public.

The obligations of a profession are so much a matter of attitude that codes alone are not sufficient to sustain them. Equal importance attaches to the state of mind known as professional spirit, which results

from associating together men of superior type, and from their common adherence to an idea which puts service above gain, excellence above quantity, self-expression above pecuniary incentives and loyalty above individual advantage. The professional man cannot evade the responsibility to contribute to the advancement of his group. His skill he rightly holds as a personal possession, and when he imparts it to another he rightly expects a due reward in money or service. His knowledge, however, is to be regarded as part of a common fund; hence the obligation to publish researches and to share advances in professional practice. . . .

Licensing, as developed in other professions, is primarily for the protection of the public. People need the services of doctors, dentists, and lawyers in personal emergencies when they are least able to discriminate between the competent, ethical practitioner and the shyster, quack, or imposter. Incidentally, licensing tightens the monopoly of a profession and aids it in restricting accessions. How much protection does the public gain from the licensing of engineers? Some, undoubtedly, and perhaps much in the non-industrial areas where few persons have any real knowledge of engineering standards and personnel, and where individual practitioners and partnerships still predominate. Under these conditions the engineers receive much the same degree of protection as the public. Where engineering practice is largely corporate, rather than individual, licensing affords only nominal protection to either side. In structural practice, where the engineer comes into contact with the architect, it is essential that regulations imposed on the one shall not infringe the rights of the other. If one is licensed, it is fairly imperative to do the same for the other.

Our profession has little need of restrictive measures to curtail its numbers. The number of doctors or lawyers required per million of population is fairly inherent, but we are still far from the limit of society's capacity to use men who apply the resources of science to economic processes and utilities. As a means of raising professional standing the results of licensing have been practically negative. It may have kept out a few shysters who might have survived in a state of free competition, but it has left the general level of the profession unaltered. . . .

A plan of certification by the profession is a task for many men to work out, and not for one. May I suggest, however, the following features:

1. Certification should be earned, and not granted as a mark of honor.
2. There should be a code of educational qualifications more advanced than mere graduation from college, yet obtainable by both college and non-college men.
3. These qualifications should be tested individually, not gaged by

personal estimates and testimonials alone.

4. Educational qualifications should comprise scientific, technical, economic, and civic knowledge of a mature order.

5. There should be a code of experience qualifications which would normally make the age of certification fall between 25 and 30.

6. The certification of graduates should be the goal to which the colleges and the professional societies should bend their influence. To this end the colleges should be encouraged to limit the award of professional degrees to those who have previously been certified.

One Chemist Gone Hollywood

From the *Movie-Talk* columns, conducted by Thornton Delehanty in *The New York Evening Post:*

Chemist Classifies the Movie Stars According to Their Diets and Provides Hollywood with a New Diversion

Chemistry, it seems, makes strange bedfellows. According to Dr. Benjamin Gaylor Hauser, a physiological chemist who has recently been test-tubing the leading celebrities of America, with special attention to those in Hollywood, one's type of personality can be resolved and tabulated in a chemical formula. Writing of his laboratory work among the film stars, a reporter on the Los Angeles *Times* declares that Dr. Hauser has become the latest rage in the colony.

Everybody goes about asking everybody else, "Are you a silicon or are you a chlorine?" The answer depends on what you eat. If you don't know what you eat, then, of course, you are hopelessly *déclassé* in Hollywood. For it is one's predilection in victuals that determines the chemical composition of his body and the temper of his personality.

"The body is a laboratory," says this writer, "in which chemicals fuse, refuse to mix, 'fight' one another or explode much as they do in an actual chemist's test tube. These chemicals, derived from diet, determine a lady's or gentleman's personality." The article then goes on to list some of Dr. Hauser's classifications.

On looking over this fascinating catalogue we find that among the sulphur types are Norma Shearer, Greta Garbo, Ruth Chatterton, Marlene Dietrich, Ramon Novarro, and Janet Gaynor. The sulphurites, says Dr. Hauser, are characterized by good complexions and cultural pursuits.

In the sodium class there are Douglas Fairbanks, H. L. Mencken, Billy Sunday, Al Jolson, and Pola Negri. You can tell a sodiumite by his "speed, intensity, and relentlessness."

Among the representative hydrogens are Marie Dressler, Herbert Hoover, Cecil de Mille, King Vidor and Emil Jannings, while the phosphorus class includes Marceline Day, Gloria Swanson, Dorothy Mackaill, Calvin Coolidge, and Jimmy Walker (that must have been before Jimmy changed his diet). Dr. Hauser says of this type that they usually have "strong psychic occult, emotional and nervous characteristics, and are practical dreamers."

And then lastly come the potassiums. Here we find Jack Oakie, Gene Tunney, William Haines, and other "typically American, universally popular" beings.

Unfortunately the writer in the *Times* did not ask Dr. Hauser what would happen if you mixed up these types. For example, suppose Marie Dressler and H. L. Mencken were to agree to eat each other's food. Would that make Miss Dressler the editor of *The American Mercury*? The experiment would be worth trying, anyway.

Chemistry via the Church

From *The Bowling Green* page in *The Saturday Review of Literature:*

E. S. F. writes from Stanford University, California:

An occasional ecclesiastical note in *The Bowling Green* leads me to think you may be interested in what follows.

In Hastings last summer I sought out the Round Church, "St. Mary in the Castle," hoping to find it as interesting as certain other round churches in England. It is, on the contrary, a singularly unattractive modern church with no feature of interest except a tiny chapel hewn out of the rock where water bubbles into the baptismal font from a living spring. This spring is said to have supplied William the Conqueror's castle, the ruins of which are on the cliff above. A leaflet which one buys in aid of parish funds reads: "The water has been analyzed by the public analyst. It is rich in minerals and wholesome for drinking. It contains sodium, calcium carbonate, calcium sulphate, magnesium chloride, sodium chloride and nitrate, silica, and a trace of iron. Each of these is symbolic of the Water of Life, which makes men the salt of the earth (sodium), generates the warmth of Divine Love in the heart (calcium), makes them Lights in the World and attractive (magnesium), strong to resist evil (iron), and, like silica, makes them God's jewels."

Thus does the Anglican Church turn the tables and quote chemistry to its purpose!

The Vicious Circle

Here is a French allegory that points a moral worth remembering:

A portrait painter sat in his favorite cafe sipping his wine. His first small bottle finished, he was about to order another when his eye fell on a headline in the *Figaro*, "Hard Times Are Coming," so instead of ordering his second bottle, he called for his check.

"Is there anything wrong with the wine?" asked the landlord.

"The wine is good, but I did not order a second bottle because hard times are coming and we must economize," explained the artist.

"Hard times," said the landlord. "Then my wife must not order the silk dress we planned, but must take one of cotton."

"Hard times," repeated the dressmaker when the order was cancelled. "This is no time to expand. I must not make the improvement I had planned in this place."

"Hard times, eh?" said the builder, when the dressmaker cancelled the building plans. "Then I cannot have my wife's portrait painted." So he wrote the artist and cancelled his order.

After receiving the letter the artist went again to his favorite cafe, and ordered a small bottle of wine to soothe him. On a nearby chair was the paper in which he had read of hard times a few days before. He picked it up and read more closely, and found that it was two years old.

—*Progress*

THE PRESIDENT'S PAGE

"I Got the Job!"

The classified telephone directory of Manhattan, New York City (The Red Book), lists two full pages of three columns each under the heading "Architects."

There are nearly fifteen pages of "Lawyers." There are nearly seventeen pages of "Physicians."

There are two and one-half columns (less than one page) of "Chemists." And many of these would not be classified as chemists by the chemists themselves.

Why this small number of chemists as compared with architects, lawyers, and physicians? What becomes of the hundreds of graduates in chemistry who are being poured out of our colleges and technical schools every year?

They are not listed because they are working for somebody else, not for themselves. The whole tradition of the chemical "profession" seems to be that a graduate in chemistry has attained the heights of success when he can cry out triumphantly, in the language of the correspondence school advertisement, "I Got the Job!"

Is the practice of chemistry a profession? —F. E. B.

AN ANNIVERSARY

In donning its blue jacket for January *The* CHEMIST commences its second year in its present form.

This month also marks the eighth anniversary of The American Institute of Chemists.

At just this time, therefore, it is doubly propitious that we can announce the removal of the editorial headquarters of *The* CHEMIST to the new office of the Institute at 233 Broadway, New York.

With increased facilities for production thus made available, *The* CHEMIST should advance rapidly as the one and only organ for the expression and frank discussion of the problems which face professional chemists.

In greeting you for 1930, we listed the means by which you could help *The* CHEMIST; and every issue throughout the year reminded you that **this is your own paper,** and invited you to **make use of it.**

In renewing our good wishes for 1931, we hope that the year ahead may more than compensate you for any disappointment or discouragement during the bad year just passed. There is only one way to move from the bottom; up!

Editing your paper ought to be as easy as it is enjoyable; but your editor has not always found it so. If at any time you read an item in *The* CHEMIST which does not express *your* views, please just lay it to the fact that *you* had not found time to send in the article which really should have occupied that space.

So now, let's start all over again **RESOLVED: to help *The* CHEMIST.**

—F. E. W.

THE NATIONAL COUNCIL

The seventy-fifth meeting of the Council of The American Institute of Chemists was held at the Secretary's office, Room 2110, 233 Broadway, New York, N. Y., on Friday, November 28, 1930.

President Breithut presided. The following councilors and officers were present: E. F. Cayo, M. L. Crossley, J. F. X. Harold, K. M. Herstein, H. G. Knight, F. W. Zerban, F. W. Zons.

Frederick J. Kenney, Chairman of the New York Chapter of the Institute, was also present at the meeting.

The minutes of the previous meeting were approved.

The Treasurer reported a cash balance on hand of $2720.06.

A report from the Secretary was read by Dr. Breithut.

The Qualifications Committee submitted its report upon the applications received. The names of those persons elected to membership are on page 157.

The Secretary was requested to add a footnote to application blanks that are sent out, to the effect that proof of American citizenship will be required of applicants born in foreign countries.

A letter from F. H. Murray, who wants to form a Chapter of the Institute in the Newark Technical School, was read by Dr. Breithut and discussed by Dr. Zons and Dr. Crossley. The letter was referred to Dr. Crossley with a request that he draft a reply.

A letter from Mr. William E. Bullock, commenting upon the licensing of chemists, and Dr. Grosvenor's reply were read by Dr. Breithut.

It was moved and seconded that the new *Committee on Public Relations and Publication* shall consist of F. J. Kenney, *Chairman*, L. V. Quigley, Miss F. E. Wall, and F. W. Zons; motion carried.

Mr. Kenney outlined the Joint Meeting to be held on December 12th, with the New York Chapter of the Institute in charge. The following societies will be present: *Society of Chemical Industry, American Electro-Chemical Society, Société de Chimie Industrielle*, and the *American Chemical Society*. This meeting will be the first held in The Chemists' Club since its renovation. Dr. Shirley Wynne will be the speaker.

The President appointed the following committees:

Civil Service
Howard S. Neiman, *Chairman*
Daniel F. J. Lynch
Frederick J. Kenney

Ethics
Joseph F. X. Harold, *Chairman*
Ross A. Baker
Henry G. Knight

Legislation
William M. Grosvenor, *Chairman*
Karl M. Herstein
Frederick J. Kenney

Professional Education
M. L. Crossley, *Chairman*
Herbert R. Moody
Neil E. Gordon

Membership
Leon V. Quigley, *Chairman*
Navy Chemists
Henry Arnstein, *Chairman*
Albert P. Sachs

Public Relations and the Publication
Frederick J. Kenney, *Chairman*
Leon V. Quigley
Florence E. Wall
Frederick W. Zons

Qualifications
Howard S. Neiman, *Chairman*
William L. Prager
James W. H. Randall
Frederick W. Zons

The seventy-sixth meeting of the Council of The American Institute of Chemists was held at the Secretary's office, Room 2110, 233 Broadway, New York, N. Y., on Friday, December 19, 1930.

President Frederick E. Breithut presided. The following councilors and officers were present: K. M. Herstein, H. R. Moody, H. S. Neiman, F. W. Zerban. The Philadelphia chapter was represented at this meeting by Mr. Franklin D. Jones instead of by E. F. Cayo.

Frederick J. Kenney, Chairman of the New York Chapter of the Institute, was present at this meeting.

The minutes of the previous meeting were approved.

The Secretary read a letter from the Secretary of the Washington Chapter, expressing the appreciation of the Washington Chapter for the Institute's support of their classification of government chemists.

The coming Exposition of Chemical Industries to be held May 4, 1931, was discussed by Dr. Breithut and Mr. Kenney and it was referred to Mr. Kenney for his attention.

The Qualifications Committee submitted its report upon the applications received; the names of those elected are on page 157.

The membership report was read, giving the total number of members as 622.

The formation of Junior Chapters of the Institute was discussed by Dr. Breithut and Dr. Moody.

In the absence of the Treasurer, his report was read by Mr. Herstein.

Dr. Moody reported progress for the Educational Committee.

Mr. Herstein reported progress for the Committee on Legislation, and the Committee was requested to submit a detailed report to the Council at the next meeting.

There being no further business the meeting adjourned.

H. S. NEIMAN, *Secretary*

December 19, 1930

NEWS OF THE CHAPTERS

New York

The third regular meeting of the 1930–31 season occurred on the evening of December 12th at The Chemists' Club. The regular program was preceded by dinner served in the reopened dining room of the Club. The Club having been subjected to extensive alteration and having benefited by diversified improvement resulting from operations conducted during the past six months, the Chapter was particularly privileged in inaugurating the resumption of chemical meetings in the well-established location. The two preceding meetings of the season had been held in the Murray Hill Hotel.

This meeting was under the joint auspices of the Society of Chemical Industry, American Chemical Society, American Electrochemical Society, *Société de Chimie Industrielle*, and the Institute. Mr. Frederick Kenney, Chairman of the New York Chapter, presided.

The dinner was attended by one hundred three persons and the assemblage during the subsequent program numbered over two hundred.

The speaker of the evening was Dr. Shirley W. Wynne, Health Commissioner of the City of New York. His subject was: "The Chemist and His Relation to the Problems of Public Health."

There were preliminary addresses by two of the guests of honor: Dr. M. L. Crossley, past-president of the Institute, and Chief Chemist of the Calco Chemical Company, whose remarks were anent the findings of the Educational Committee, of which he is Chairman; and Dr. F. C. Whitmore, Dean of the School of Chemistry, Pennsylvania State College, member of the National Research Council, who responded to the theme inaugurated by Dr. Crossley, and gave an interesting summary of certain possible additions and omissions in the present college curricula which constitute the established educational preparation for the profession of chemists.

Dr. Wynne interestingly reviewed the professional work of the chemist in the organization and operation of a department of public health in a metropolis typified by New York City. For the detailed report of his talk, see page 139.

Dr. Wynne pointed out that in spite of the excellent work which has been done, the amount appropriated for public health work is relatively small compared to the appropriations for the more material phases of the city administration.

In addition to Dr. Whitmore and Dr. Crossley, the guests of honor included Dr. Frederick Breithut, National President of The American Institute of Chemists, and Mrs. Breithut, Dr. George F. Kunz, President of the *Société de Chimie Industrielle*, Jerome Alexander, Secre-

tary of the same organization, Miss Florence Wall, Editor of *The* CHEMIST, Dr. Foster Dee Snell, Honorary Secretary of the American Section, Society of Chemical Industry, Dr. William M. Grosvenor, National Vice-President of the Institute, Mr. Howard S. Neiman, National Secretary of the Institute. The meeting adjourned at 10:30 P. M.

Respectfully submitted,
LEON V. QUIGLEY, *Secretary*

Pennsylvania

Instead of the regular meeting on December 4th, the Chapter made a tour through the Jefferson Hospital Laboratory. The competent guide demonstrated the bronchoscope and X-rays, including fluoroscopic pictures of living persons. The Bacteriological and Anatomical Laboratories were also visited. The meeting was well attended and was considered one of the most instructive meetings of the Chapter. See page 146 for full account.

The next regular meeting of the Chapter will be held at the Engineers' Club, on Tuesday evening, January 6, 1931.

The Committee has been very fortunate in obtaining as the speaker Prof. Owen L. Shinn, *F.A.I.C.*, University of Pennsylvania, who will talk on *Chemical Education in High Schools and Colleges*. Teachers of chemistry in the nearby colleges and high schools are invited to attend this lecture and take part in the discussion to follow.

Respectfully submitted,
BENJAMIN LEVITT, *Secretary*

Washington

Dear, dear! Here we are, simply panting for news, and not one word from this Nation's capital!!

CHANGES OF ADDRESS

Please take out your nice clean roster and note the following changes of address:

WALTER J. BAEZA (*p.* 69): Mail to Industrial Research Co., 122 East 42nd St., New York City.

PAUL A. NICE (*p.* 103): Mail to home address, 1237 Race St., Denver, Colo.

GUNTHER SCHMITZ (*p.* 111): Change home address to 14 Vassar Place, Scarsdale, N. Y.

PERSONALS

DR. HENRY ARNSTEIN has just returned from a three-months' trip to South America in the interests of his business activities in the Argentine.

VICTOR COFMAN, formerly research chemist at the E. I. du Pont de Nemours Experimental Station, Wilmington, Del., is at present in England.

PROFESSOR ARTHUR E. HILL of New York University has been elected Chairman of the New York Section of the American Chemical Society; DAVID P. MORGAN was elected Secretary-Treasurer; Professor R. R. RENSHAW and FOSTER D. SNELL were named to the executive committee.

BENJAMIN JANER, at one time chief chemist of the Garfield Manufacturing Company, is now employed in the laboratory of the Bureau of Public Works, Manhattan, in the capacity of consulting chemist.

FRANKLIN D. JONES and E. F. CAYO of Philadelphia are the proud fathers of new young sons.

BENJAMIN LEVITT lectured recently on *Saponification* before the chemistry students of the Philadelphia College of Osteopathy. An article on *Soap Chemistry* appeared lately in *The Catalyst*, and for the past year he has been a regular contributor to the magazine *Silk*.

SOLOMON SCHNEIDER of the Naval Ordnance Department has been transferred from Munhall, Pa., to the Philadelphia Navy Yard.

EDWARD G. STICKNEY, chemist of Wailes Dove-Hermiston Corp., New York City, has been transferred to their plant at East St. Louis.

P. J. WOOD was recently elected President of the American Association of Textile Chemists and Colorists, at their Annual Meeting at Chattanooga.

DR. JOSEPH F. X. HAROLD was Chairman of the Technical Program Committee.

KARL M. HERSTEIN has been elected to the Council of the Technical Association of the Fur Industry.

ADDRESSES WANTED FOR

MISS ISABELLE DAVISON COLLINS, *formerly* 342 Cherry Street, New York, N. Y.

JOHN H. KUESEL, *formerly* 42 Broadway, New York, N. Y.

FLORIAN R. KAPP, *formerly* 448 E. 58th St., New York, N. Y.

ANDRES SOLOMANOFF, *formerly* 76 West End Ave., Brooklyn, New York.

MARCEL E. SCHERER, *formerly* Room 2015, 15 Park Row, New York, N. Y.

STEEL, KENNETH C., *formerly* 86 West Eighth St., Bayonne, N. J.

THE NEW MEMBERS

These names are in the new Roster just issued.

Fellows

SIEGFRIED FLORSHEIM, Chemist, American British Chemical Supplies, Inc., 180 Madison Avenue, New York, N. Y.

HOWARD STOERTZ, Assistant Professor of Chemistry, Philadelphia College of Osteopathy, 48th and Spruce Streets, Philadelphia, Pa.

Associate

HAROLD EDWIN MOORE, Research Chemist, The Capitol City Products Co., West First Avenue and Perry Street, Columbus, Ohio.

Juniors

ROBERT A. BUCHANAN, JR., Student, College of the Pacific, Stockton, California.

HENRY F. DODENHOFF, Tutor
CASIMIRO LIOTTA, Fellow
ERNEST LIVINGSTON, Fellow
ROBERT MAURMEYER, Tutor
DAVID SHAREFKIN, Laboratory Assistant
JACOB G. SHAREFKIN, Tutor
ROLAND M. WHITTAKER, Tutor

All these members are at the Brooklyn Branch of the College of the City of New York, 80 Willoughby St., Brooklyn.

APPLICATIONS FOR MEMBERSHIP

Applications have been received from the following:

For Associate

WALTER KENNETH NELSON, Research Chemist, Titanium Pigment Co., Inc., 105 York Street, Brooklyn, N. Y.

For Junior Membership

SYLVESTER SAMUEL BRETZ, Chemist, Public Service Electric and Gas Co., Harrison, New Jersey.

MICHAEL FREDERICK, Assistant Chemist, Van Dyk and Company, 57 Wilkinson Avenue, Jersey City, N. J.

MORTON M. JACOBS, Laboratory Assistant, N. Y. City Department of Health, Foot E. 16th St., New York, N. Y.; *also* Proprietor of United Medical Laboratory.

ALEXANDER JAMES STIRTON, Junior Chemist, U. S. Department of Agriculture, Bureau of Chemistry and Soils, Washington, D. C.

GEORGE E. WARD, Junior Chemist, U. S. Department of Agriculture, Bureau of Chemistry and Soils, Washington, D. C.

PERCY A. WELLS, Assistant Chemist, U. S. Department of Agriculture, Bureau of Chemistry and Soils, Washington, D. C.

EMPLOYMENT NOTES

The Bureau of Employment of The Chemists' Club is co-operating with The American Institute of Chemists, so that some of the better positions listed with the Bureau may be brought to the attention of Institute members. The Bureau welcomes correspondence with any one interested in the following openings:

1282 Chemical Engineer, experienced in the asbestos textile business. Man under forty years of age. Location in the south.

1319 Biochemist, Ph.D., with some experience in agricultural biochemical work. Preferably one acquainted to some extent with horticulture and entomology. Location, far west.

1477 Young man with some experience in patent and trade-mark law. New York metropolitan district.

1489 Paper chemist with experience in rag mills. Position is laboratory director. Middle west.

1501 Fellowship in industrial microbiology. Should have good training in biological chemistry or organic chemistry. Salary in the neighborhood of $1000 with full-time graduate credit. New York metropolitan district.

1517 Opening for a man with some graduate training. Major, organic chemistry and minor in physical, for research work in infection and immunity.

1535 A Metallurgical Engineer with at least five years' experience in the manufacture of steel and iron.

The Bureau also has various positions for recent graduates, either bachelor's, master's, or doctor's, within the last two years.

It should of course be understood that Institute members would receive introductions to these employers only under the conditions of the Bureau's regular contract.

UNITED STATES CIVIL SERVICE EXAMINATIONS

Position	*Entrance Salary*	*File Application by*
Junior Engineer	$2000	February 10, 1931

Positions Wanted

11X30 Graduate Chemist, 3 years' teaching experience, wishes position in research work or analytical chemistry.

11Y30 Graduate Chemist, 4 years' experience in Analytical Chemistry, Metallurgy, and Metallography, wishes position.

11Z30 Graduate Chemist, experienced in pharmaceutical and food chemistry, wishes position.

EDITORIAL

Unemployment

Although the problem of unemployment has assumed serious proportions and aroused nation-wide interest of late, it has been very difficult to obtain accurate figures on the actual number of unemployed chemists. There can be no doubt that since the financial crisis, many more technical men are unemployed than would be found in normal times; but the number of men out of work *because* of the depression is not available. In the spring of 1930 many companies were still adding new graduates to their staffs, but the numbers of new employees which are usually taken on in the fall fell well below normal.

On the other hand, during last spring, unemployment markedly increased among men of many years' experience, and those who had held a good position for several years in one company. Most of these were released because of the merging of several firms under one management. The consequent combination of staffs resulted in a duplication of men for a given function, and the discharge of one whose work could be handled by another followed inevitably.

As fall approached, this cause ceased to predominate, but unemployment was still increasing. At that time the largest number of men seemed to be discharged in an attempt to cut expenses. Employers found it easier to release one or two men with salaries of five to ten thousand dollars, rather than more men with lower salaries. It would probably be impossible to convince these employers that one of their five-thousand dollar men was worth many times the combined salaries of several lower-salaried employees, and that the productive value of the latter would be greatly reduced without the direction of efficient and more experienced top men. Although these older men are the hardest to replace when they voluntarily leave a position, they are more difficult to place elsewhere when they are discharged; and likewise they are usually more seriously affected economically than their juniors.

It was surprising to learn that the highest percentage of unemployed chemists is in the group of research workers. Although industry has acquired a certain faith in research, it is usually treated as a capital investment (unless, as in some sad cases, a manufacturer considers it simply as an advertisement for prestige!). In any case in times of stress many firms curtail their investments and abandon their bids for prestige.

The second highest percentage is that of the routine assistants in both laboratories and plants. Production chemists seem to have been affected least, though many of them, too, are out of work.

The present depression differs in many ways from precedent. Industry has obviously cut down drastically on production, staffs, and labor, but fewer plants have been completely closed than might be expected. Thus many key production men have been continued in employment to operate plants even at a greatly reduced rate of production.

If there is any encouragement to be gained from it, the situation in December was a little better than earlier in the fall. There had been no sign whatever of actually increasing employment, but the steady increase of *un*employment from month to month had at least temporarily ceased.

No one would have the temerity to conclude from this that bottom has been reached; but it may not be too optimistic to predict that if a new period of contraction does not again begin to throw men out of work, a slowly increasing demand for chemists may be expected before the spring of 1931.

SPECIAL NOTICE

The forms for the February issue are already closed. The forms for March will close on February 25th. Please send everything intended for publication to your nearest reporting editor, or directly to Florence E. Wall, *Editor*, at 233 Broadway, New York City.

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